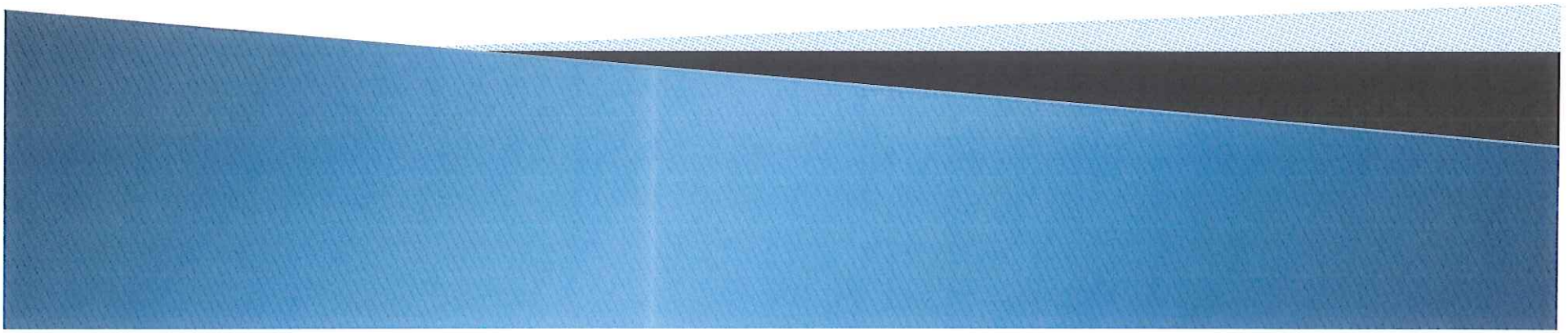
Well 5A Assessment

Town of Discovery Bay Community Services District

June 20, 2012
7:00 pm



Well 5A Assessment Report
June 20, 2012 7:00 pm
Town of Discovery Bay District Office

1. Statement of Problem
2. Well and Water Quality Background
3. Other Water Quality Problems
4. Well Performance Testing
5. Groundwater Conditions
6. Test Program and Results
7. Recommendations
8. Questions

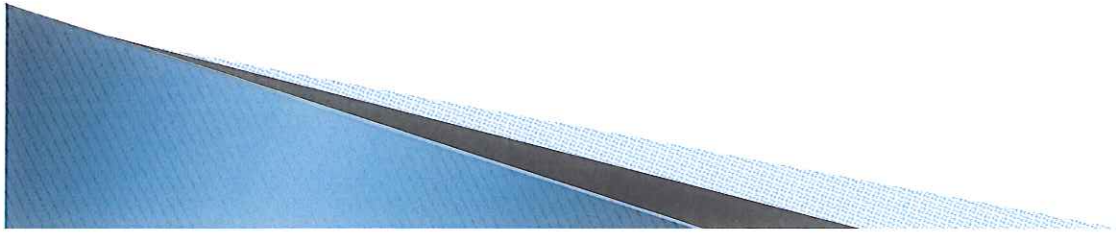


Table 1
Well 5A Specific Electrical Conductivity and Total Dissolved Solids Concentrations

Date	Specific Conductance (µS/cm)	Total Dissolved Solids (mg/L)
3/13/1991	1,023	620
1/20/1993	820	570
6/30/1994	1,027	616
7/12/1995	993	596
9/13/1995	1,127	676
2/20/1996	1,200	690
6/14/1996	1,000	590
3/10/1997	1,000	630
5/10/1999	1,010	667
5/17/2000	977	660
7/10/2001	1,100	640
10/16/2002	930	530
12/29/2004	1,190	750
12/19/2005	949	580
6/9/2009	970	560
8/24/2009	930	550
3/20/2010	1,000	N/A
6/16/2010	1,500	N/A
3/31/2011	N/A	560
3/7/2012	1,700	910
4/6/2012	N/A	960
5/18/2012	1,900	1,060

Notes

1. The California Department of Public Health (CDPH) secondary drinking water standard for Specific Conductance and Total Dissolved Solids is 1600 µS/cm and 1000 mg/L, respectively.
2. N/A = Not Analyzed
3. All results shown are based upon state certified laboratory analyses for drinking water.

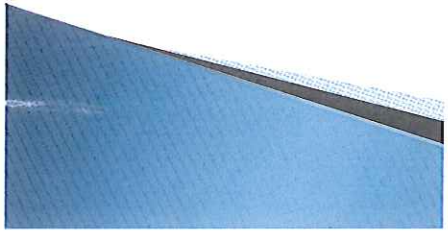


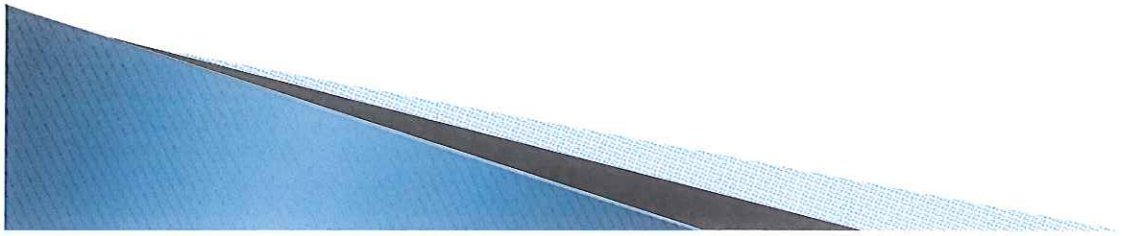
Table 2

Field and Laboratory Test Summary For May 18, 2012

			Field Measurements		Laboratory Results		
Date	Time	Depth (ft bgs)	pH	EC (µS/cm)	EC (µS/cm)	TDS (mg/L)	Chloride (mg/L)
5/18/2012	11:10	Overboard	7.79	1,874	1,900	1,060	362
5/18/2012	15:37	240	8.00	1,999	1,960	1,110	405
5/18/2012	12:30	260		1,753	1,710	980	307
5/18/2012	12:50	280	8.14	1,673	1,670	960	286
5/18/2012	13:10	300	8.45	1,398	1,400	820	196
5/18/2012	15:37	317	8.35	1,662	1,680	970	286
5/18/2012	13:35	327	7.87	3,174	3,200	1,760	830
5/18/2012	13:45	337	7.92	4,627	4,700	2,650	1,470

Notes:

1. Flowrate ranged from 1590 to 1652 gpm throughout the test.
2. Pumping Water Level: 143 feet.



Test Program and Results

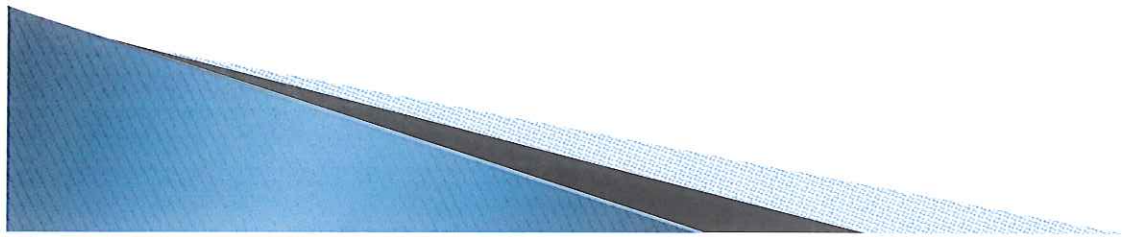
A. Well 5A On-Line Testing

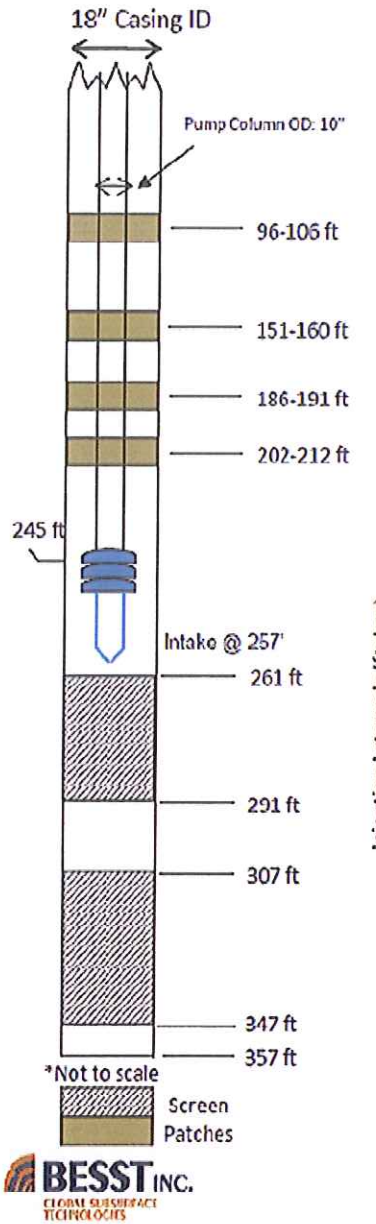
B. Dynamic Flow and Water Quality Chemical Profiles

C. Water Quality Laboratory Results

D. Well Pump Column Assessment

E. Static Testing and video Survey





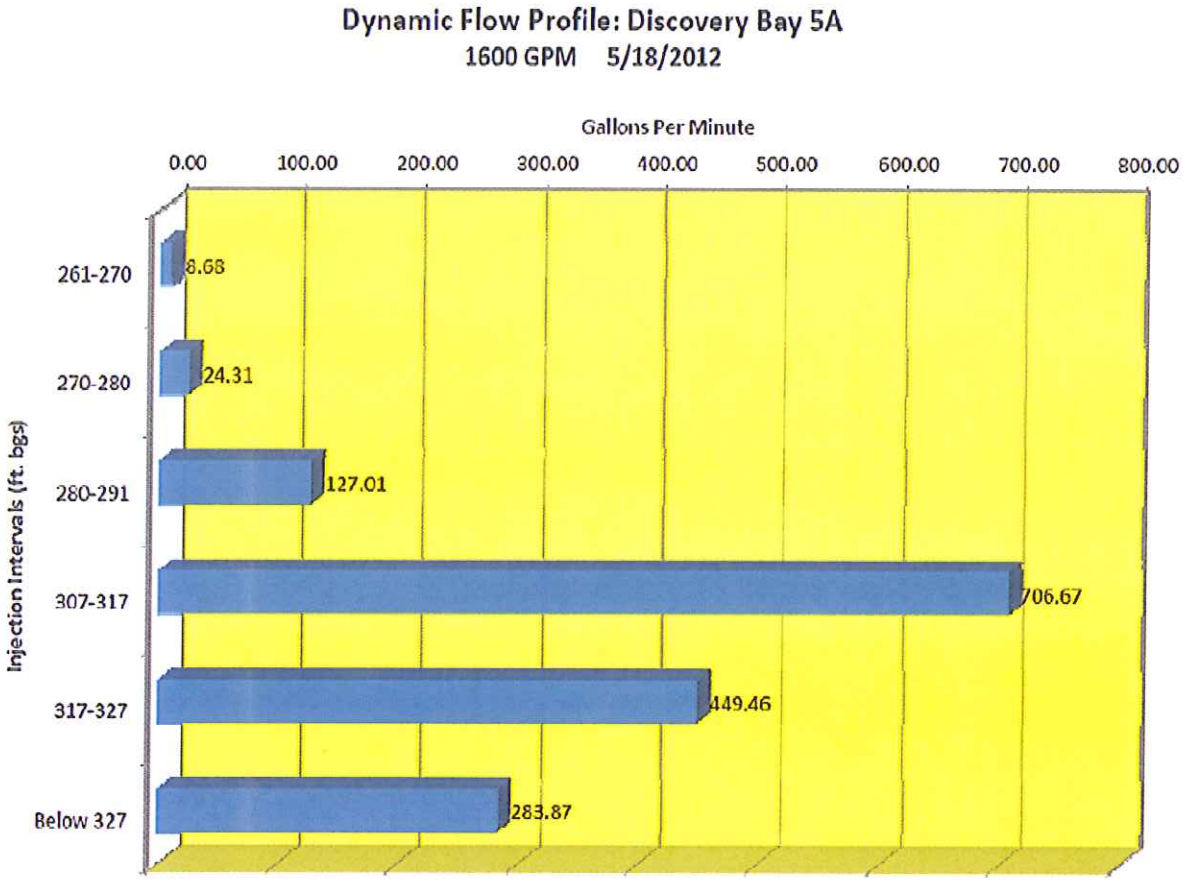


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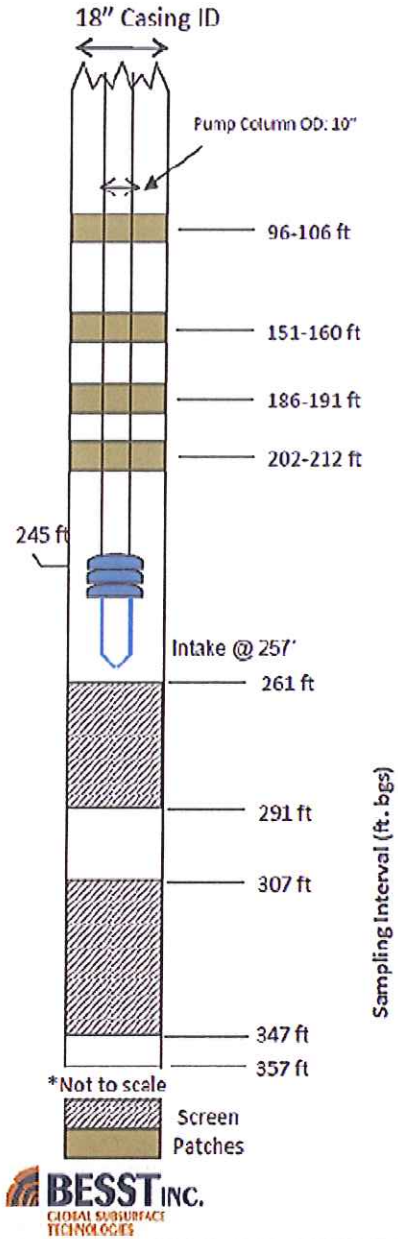
Figure 3
Dynamic Flow Contribution (GPM) By Depth and Screen Interval



Specific Conductance	ft. bgs	ft. bgs	GPM	µmhos/cm	GPM	µmhos/cm
	Depth	Interval	Cumulative Flow	Measured Concentration	Incremental Flow	Incremental Concentration
	240	above 240	N/A	1960	N/A	0
	260	261-280	1600.00	1710	32.99	3610
	280	280-291	1567.01	1670	127.01	4731
	300	307-317	1440.00	1400	706.67	1109
	317	317-327	733.33	1680	449.45	720
	327	327-337	283.87	3200	283.87	3200
	337	below 337	N/A	4700	N/A	4700
	Wellhead	Cumulative	1600.00	1900		

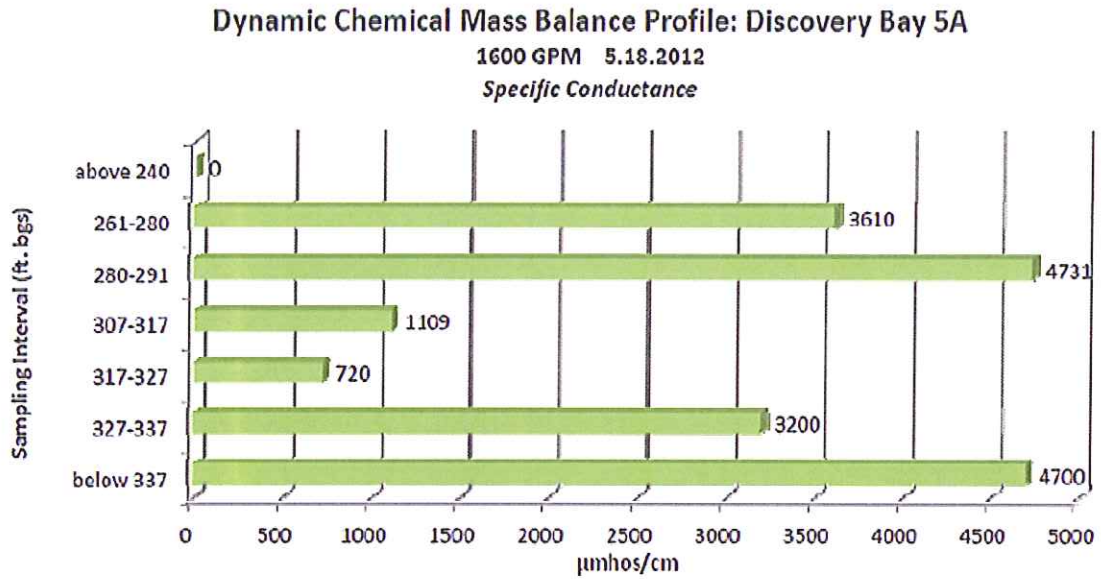


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Figure 4
Chemical Mass Balance Analysis: Specific Conductance

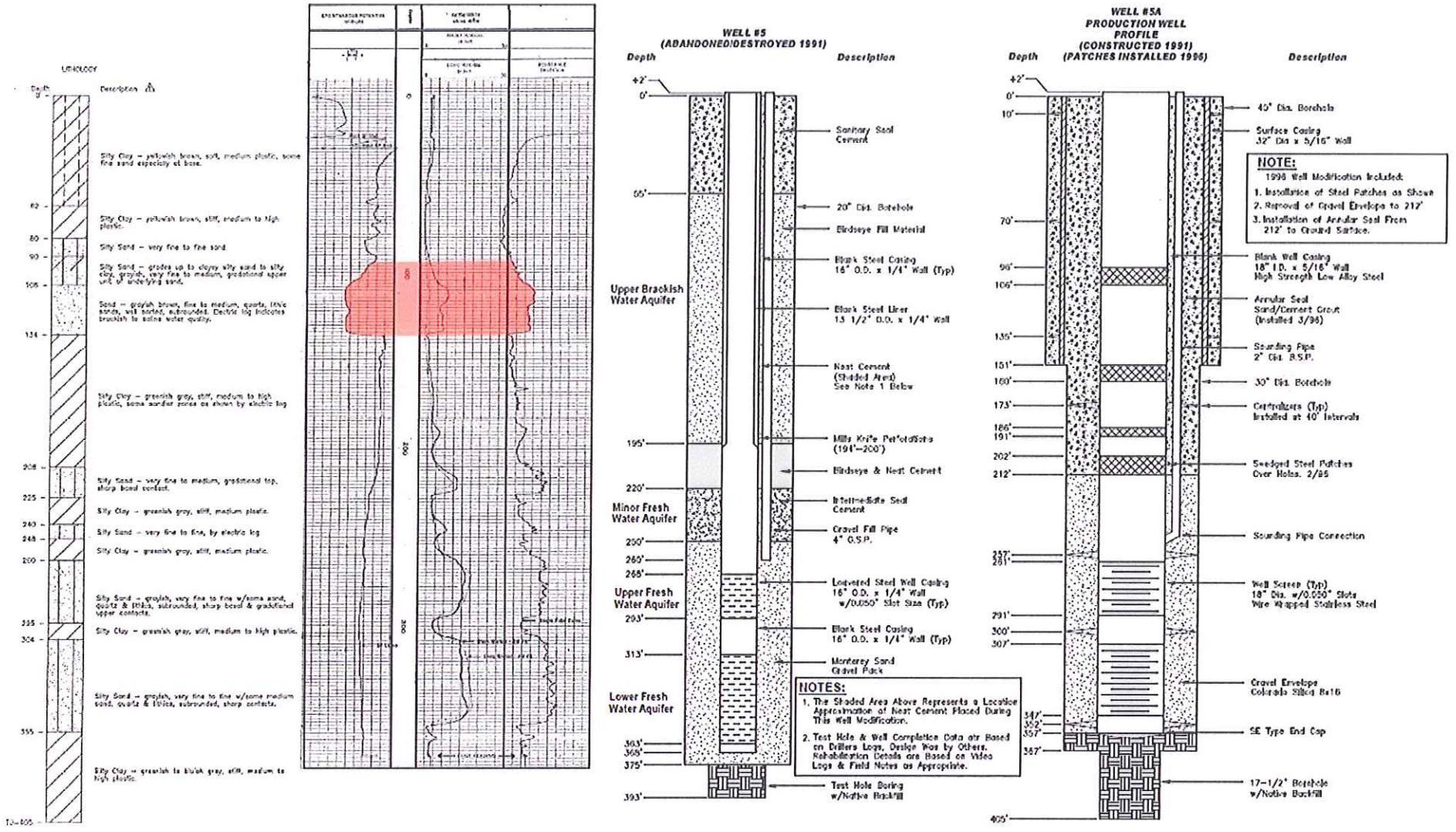

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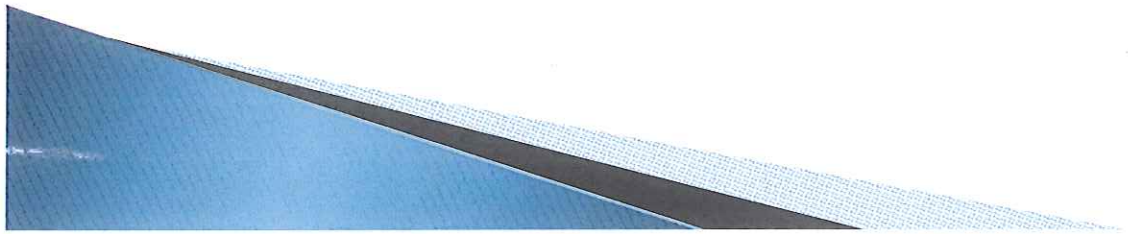
Figure 2
Wells 5 and 5A Profiles

Recommendations

1. Notify CDPH of high EC/TDS detections
2. Manage Well 5A salt loading to Newport Drive Water Treatment Plant
3. Monitor downhole Well 5A water quality (EC)
4. Install monitoring well to evaluate brackish zone conditions
5. Conduct additional Well 5A testing in gall 2012 for future operational strategies



Questions?